This model also utilizes a corridor and area-wide analysis method based on the procedures presented in Chapter 30 of the HCM. The area-wide analysis chapter of the HCM is designed to provide a less iterative, more simplistic approach to estimating speed, delay, travel time, and other performance measures for large-scale analysis. The methodologies in Chapter 30 are derived from the more complex procedures in previous HCM chapters. These area-wide methodologies are only valid when applied to a large number of facilities and are not designed to provide results as accurate and reliable as those for a single point, segment, or facility given in earlier HCM chapters. There are procedures in Chapter 30 for highway and transit systems but not for pedestrian or bicycle facilities. The highway procedures are designed for use with freeway, arterial, and rural highway systems.

The methodology for all highway facilities involves five steps. The first of these steps is to input all facility data, divide the area into the appropriate links and nodes, and identify the facility type of each link. Facility data may include daily traffic, peak-hour volume, turning movements, facility type, speed limit, signal data, number of lanes, percent trucks, and terrain. Links are defined as segments where demand and capacity do not vary by more than ten percent and do not contain a major intersection or a merge or diverge point. Table 6 can be of assistance in assigning facility type to each link.

Functional Class	Subsystem	Facility Type
Freeway	Freeway	Basic
On-ramp	Arterial	Class III[c]
Off-ramp	Arterial	Class III
Expressway[a]	Arterial	Class I
Divided arterial[a]	Arterial	Class I, II, III
Undivided arterial[a]	Arterial	Class II, III
Collector[a]	Arterial	Class III
Local[a]	Arterial	Class IV
Centroid connector	None[b]	None[b]
Notes:		
a. Analyze as rural highway subsystem (multilane or two-lane facility, as appropriate) if there are no signals or signal are spaced more than 3 km apart.		
b. Centroid connectors typically have near-infinite capacity and a fixed travel speed. They do not fit any HCM facility type.		
c. Treat on-ramp as arterial with 100-percent green time.		

Table 6. Example Functional Class-Facility Type Correlation (HCM Exhibit 30-1)

The second and third steps are to determine the FFS and capacity of each link. Since an area-wide analysis involves too many segments to feasibly measure FFS in the field, the procedures used for each specific facility type in Part III of the HCM should be used. The procedures for capacity found in these sections should also be used; however, the capacities in passenger cars per hour must be converted to vehicles per hour for the purpose of queue and delay calculations. HCM equations 30-1, 30-2, and 30-3 below can be used to calculate the mixed-vehicle capacity of a freeway link, a rural highway link,